

1. How would you define your projects? What is your role in your projects? Do you define yourself as a choreographer or as a director (or both)?

K. Danse is a pluridisciplinary Company involved in many production, mediation and research projects integrating dance and digital arts.

I am both the artistic director and choreographer of K. Danse. Both terms apply to the development of a concept and the staging of the choreography (used for everything involved: people, bodies, spaces, objects, scenography, sounds).

The choreographic approach of the K. Danse Company develops a contemporary movement language by the dialectic confrontation between the physical body (lived, experienced) and the visual body (seen, virtual). The performances question the borders between fiction and reality, the social construction of the body, and the psychological structures in human relationships.

They take place either in real indoor spaces (immersive, contemplative pieces on theatrical stages, participatory pieces in in/outdoor unconventional spaces), in real outdoor spaces (site specific events) or in virtual spaces (interactive and VR installations, on line telematics), sometimes both. In all cases I play the role of a director and of a choreographer, in close collaboration with digital artists and performers.

2. Interactions, haptics, motion capture... Which terms can best define what bodies are in a virtual dance performance?

K. Danse's hybrid performances make use of various digital technologies to create live interactive environments (for performances, immersive and VR installations, site specific performances, participatory projects): mobile phones, reactive clothing, physiological and haptic sensors, optical tracking sensors, internet networks for tele presence between distant sites, AI neuronal networks and machine learning, interactive 3D, motion capture, VR, robotics, etc.

Bodies in a virtual dance performance can be apprehended in various ways: computer aided composition, staging of man-machine relationships, perceptual augmentation of the senses, dynamic poetic environments, confrontation with artificial intelligence, staging of interactive dramaturgies, through participatory performances which question the relationships between audiences, performers, and environments, etc.

If we consider exclusively the aspects of dance performances taking place in virtual spaces, i.e., dances taking place in a set which represents an imaginary world in a realistic manner, immersive, in real time and in three dimensions, bodies can either be reproduced via real time or reactive prerecorded video or as 3D graphical animated avatars (real time or post produced motion capture, meta humans) accompanied, depending on the various projects, by real time expressions and sounds.

Body representations can be hyper realistic, transformed, abstract meshes or made into dreamy chimeras.

It is of great interest to consider that a dance in virtual space is a dance that can enact what it's impossible in real space: easy change of gravity without specific physical tools, infinite multiplicity and reproducibility, prodigious scales, perspectival changes of vantage points of view, etc.

Moreover dances in virtual spaces can reenact forgotten movements, "lost" gestures, amazing movement qualities, indefinite expressions, a "life after death".

3. At the juncture of hybridization, ecology, and experimentation, what brings you to use virtual technologies and virtual spaces to create? How are they beneficial to your audience?

There is nothing virtual in our relationship with virtual people, spaces, and technologies.

I am interested in the philosophical, ecological, economic, and social impact of digital technology on society, and this contemporary questioning informs the developing of a meaningful relationship between the body and virtual technologies.

I believe the expressive capabilities of the body can carry that, via dance.

Ever since I started working as a dancer and a choreographer, I have been experimenting with digital technologies to see what they can bring to the art of choreography making. I could summarize this lifelong passion by the following question: how can dance merged with digital technology be helpful in a process which attempts to reach the potential re-embodiment of a disembodied body?

I like the idea of extending, through interactive relationships, the substrate of the body itself and the imaginary, both capable of integrating new prothesis and expanding furthermore the sensory and symbolic quest towards an understanding of the world, while inscribing our own mystery in it.

Virtual technologies, if properly used, can magnify the body, augment its expressive modes, expand poetic visions of the body, and offer audiences in-depth means of perception, and empathy.

Virtual technologies can expand the perception of movement in several ways:

- By staging the metaphorical relationships between human beings and technology. Using for example themes related to man-machine connectedness (social control, body tracking, dance as a "serious game", dialogs with distributed avatars, ...)
- By merging virtual characters and spaces in ways which can open, augment, and magnify the fine perception audiences can have of the intangible, in each context (for example a specific body state or the many facets of a person-to-person relationship). Technology there acts as a revealer of the invisible (example: augmented tactility and retroactive feeling of touch, physiological feedback, ...).

4. Stage vs metaverse aesthetic, venues vs streaming, spectator vs actor: what are the challenges of using virtual spaces and technologies in dance?

Two questions come to my mind:

1 - How can a choreographer take advantage of digital technologies in the field of dance or other forms of living entertainments?

2 - What are the new problematics that are brought by the insertion of digital technologies in dance?

1 - How can a choreographer take advantage of digital technologies in the field of dance or other forms of living entertainments?

Linking an artistic approach with technology development:

On one hand the artistic design can inform technological development (choreographic tools can be used for the design of technology). For example, in-depth analysis of compositional tools can provide novel directions in the understanding of movement analysis and whole-body interaction. On the other hand, technology design can inform artistic development: technology can provide choreographic and creative tools. Especially when technological environments provide and induce new conditions and novel constraints for the making of movement and choreography, and for its perception from an outside viewer.

Devising choreographic composition and technology for movement analysis:

Tools for choreographic composition can be used for the thorough analysis of movement principles. To dissect, in separate units, principles which have a lot of overlapping elements. This can be very useful from the point of view of pedagogy. Highly innovative technology can also be made accessible for creative purposes.

Working on Gamification for learning pedagogical processes:

This can be achieved through the description of the close relationship between - the movement principles used in the making of a performance - the choices of avatar visualizations - the programming of the behavior of the visual and sonic entities and - the rules added in the varying semi autonomy.

Using choreography for interactive design:

Fine-grain analysis and automated multimodal processing of highly diversified qualities of movement can allow users to gain an improved awareness of individual expressive movement qualities, resulting in an enhanced inventiveness of specific qualities in choreographic and pedagogical terms. Choreographic imaginary can also be useful for technology developers.

Using digital technology with dance can provide new ways of disseminating movement and help attract new dance connected people (see examples with children in playful innovative dance environments).

Imagining a relevant aspect of research and development: the definition of the interaction rules between a user and an avatar, so that through a process that has in common elements of communication, the user can proceed through imitating, proposing, responding, resisting, improving or not, provoking, etc. This involves the devising of semantics for interaction purposes.

Considering choreographic, musical, and visual approaches together with:

- \* The choreographic staging of a playful relationship.
- \* Different types of encounters between a user and an avatar.
- \* Lights/images/sounds which can visualize/materialize a kind of "architecture", an invisible space, between user and avatar interacting with each other.
- \* An "infra thin" interface, between bodies in space, to share? Threads for learning?

2 - What are the new problematics that are brought by the insertion of digital technologies in dance?

The taking into consideration an overall artistic approach which should be dedicated at taking a step away from just using technology for the sake of it or for fashionable purposes.

The attention given to the meaning carried by a dance piece using technology, whether abstract, magical, poetic, or theatrical.

The sensitive use of digital media so that the lived body remains an integral part of the dance composition.

The possibility to combine a dual point of view for both the staging of intentions and the crafting of novel movement material.

The design of interactive and reactive environments which are pertinent to movement kinematics, fine grain analysis of qualities, dynamics, and emotions.

The invention of new spaces for the dramaturgy of the co-writing of dance and digital media.

To invent new procedures for audience active participation.

To expand the access to contemporary dance for wider audiences.

To trace down even further the mere poetics of dance.

## Conclusion

In all experiences mixing dance and digital technology, contemporary dance recognizes one of its initial vocations, which is to always make the known world tip towards the unknown, to travel across the threshold of the unreachable, to always lead towards new horizons for both the eye and the body.

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